NOTES ON THE DISTRIBUTION AND CONSERVATION STATUS OF *TRAPEZITES ATKINSI* WILLIAMS, WILLIAMS & HAY (LEPIDOPTERA: HESPERIIDAE)

PETER S. VALENTINE[1] and STEPHEN J. JOHNSON[2]

[1]*Tropical Environment Studies & Geography, James Cook University, Townsville Qld 4811*

[2]*Oonoonba Veterinary Laboratory, PO Box 1085, Townsville, Qld 4810*

Abstract

Following concern about the conservation of *Trapezites atkinsi* Williams, Williams & Hay, field studies were carried out to determine whether the species has a wider distribution than originally reported. The results of these observations suggest that the species is widespread in suitable habitat in southwestern Western Australia and that its conservation status may be more secure than previously considered. The relationship between this species and others, notably *T. sciron* Waterhouse & Lyell, remains unclear.

Introduction

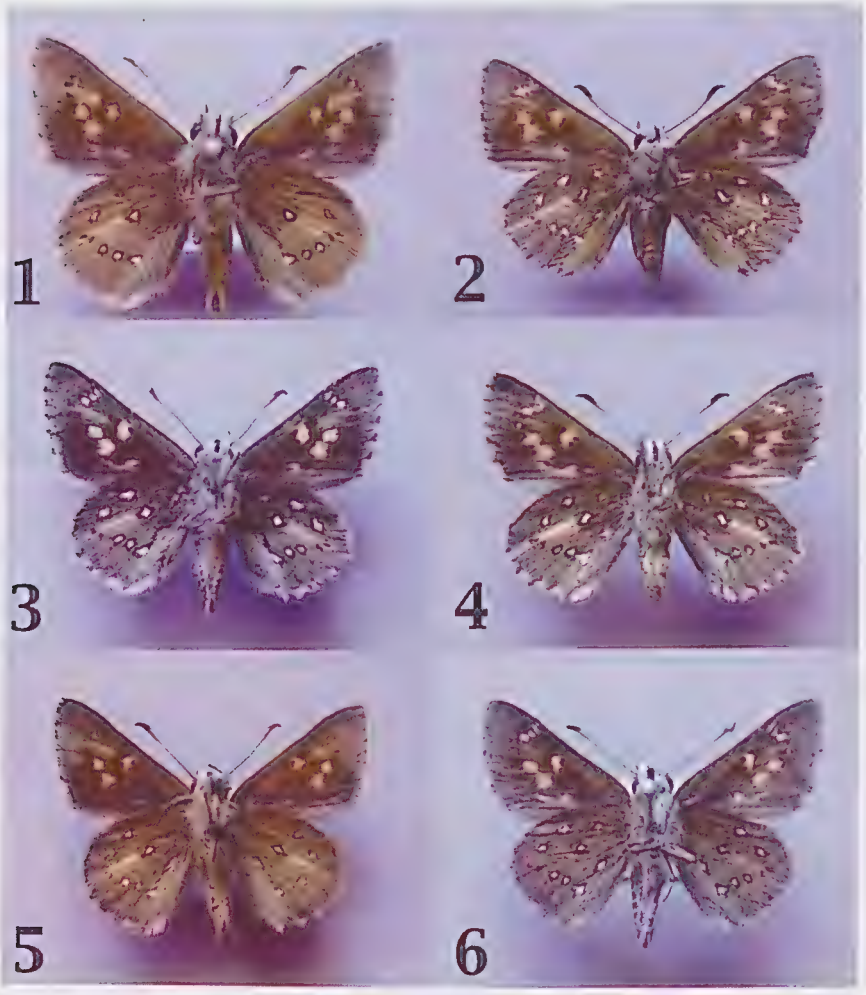
Trapezites atkinsi Williams, Williams & Hay (Figs 1-6) was first described from southwestern Western Australia where adults were collected at a single location in or near D'Entrecasteaux National Park (Windy Harbour). At the time of description Williams *et al.* (1998) believed that 'its apparently restricted distribution places this skipper in the vulnerable category'. They noted that their attempts to locate further populations had been unsuccessful. Subsequently Braby (2000) also considered that the appropriate conservation status for this species was 'vulnerable until further populations are discovered'. In early November 2001, we completed a survey of the coast from Bunbury to Denmark in an attempt to locate other populations of *T. atkinsi* in areas of apparently suitable habitat.

Observations and discussion

The habitat where *T. atkinsi* occurs in D'Entrecasteaux National Park consists of limestone cliffs with heath communities (strongly wind-pruned in exposed areas) and dune and swale systems behind open beaches. Similar communities occur elsewhere along the south coast and along the west coast from Cape Leeuwin to Cape Naturaliste (Fig. 7). A variant specimen of *Trapezites* Hübner, taken with *T. argenteoornatus* (Hewitson) near Bunbury in 1997, seemed close to *T. atkinsi* and prompted a closer survey of the coast south from Bunbury. On 2 November 2001, we located *Acanthocarpus preissii* Lehm, the larval food plant for *T. atkinsi* and *T. argenteoornatus*, along foreshore areas at Dunsborough, 100 km south of Bunbury and adult *T. argenteoornatus* were common, establishing a new southern record for that species.

Between Dunsborough and Yallingup is a distance of less than 10 km but the environmental change is significant in geology, relief and in land systems and associated vegetation communities (Valentine and Enright 1975). From previous visits to the Windy Harbour area it was apparent that sections of the

coast near Yallingup were very similar to the type locality for *T. atkinsi*. We were able to locate both larval food plants and adults of *T. atkinsi* along a limestone ridge and cliff area within the Leeuwin-Naturaliste National Park. During a 1.5 hour survey we noted in excess of 30 individuals, both male and female, flying amongst the heath on a 150 metre section of limestone coast. This new location is more than 150 km from the existing known site.



Figs 1-6. Adult underside patterns in *Trapezites atkinsi*. (1, 2) Prevelly Beach male and female; (3, 4) Windy Harbour male and female; (5) Yallingup male; (6) Windy Harbour male.

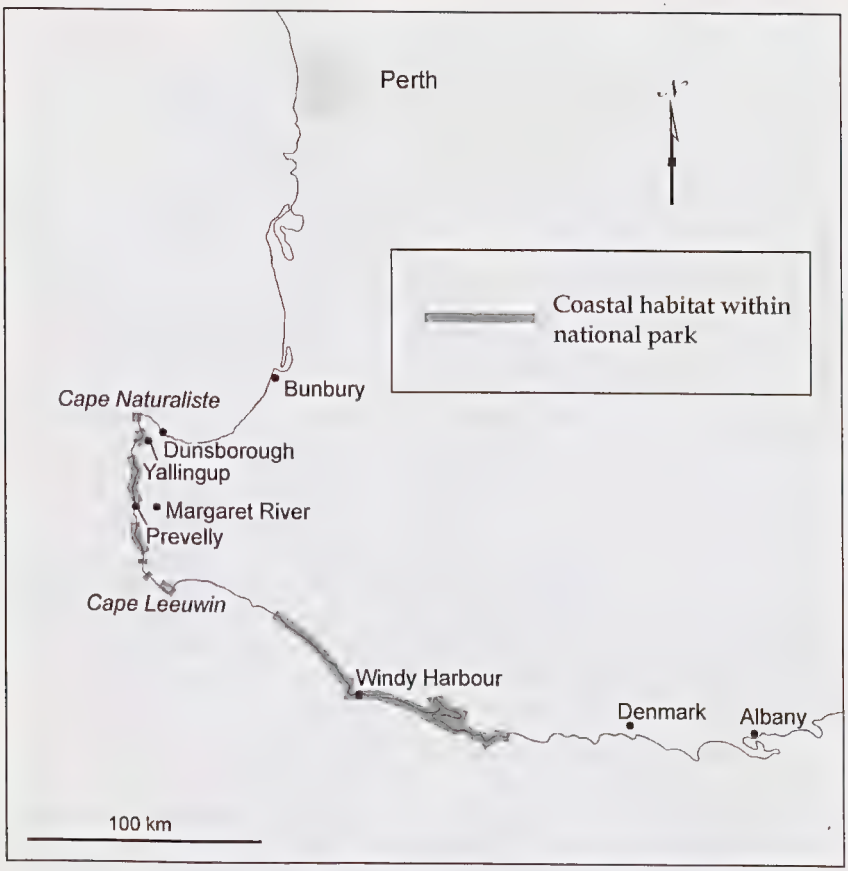


Fig. 7. Map of the locations referred to in SW Western Australia.

We also undertook careful searches at Prevelly, 50 km further south of Cape Naturaliste, and at several locations found larval food plants, larval shelters, pupae and fresh pupal exuviae. Adults were common with males patrolling the ridge tops and females further down the cliff face, sometimes extending to the beach. Adults were seen along the coast from near the mouth of Margaret River south to Gnarabup Beach. This area is contained within two reserves vested in the Augusta-Margaret River Shire for parks and recreation, and similar habitat occurs to the north and south within the Leeuwin-Naturaliste National Park.

Apparently suitable habitat was also noted at Cape Clairault, Gracetown and at Hamelin Bay closer to Cape Leeuwin. The food plant was abundant at these sites but no adults were noted, possibly because searches were done early in the morning before adults were on the wing. Although larval food plant was located at Cape Leeuwin, we did not sight any adults. A check near Windy Harbour on 9 November revealed many adult *T. atkinsi* flying amongst the dunes and swales (outside the National Park) as well as along the cliff tops (within the National Park). Our final search, at Ocean Beach, near Denmark was unsuccessful and we were unable to locate any *A. preissii*. Following our findings in the Yallingup and Prevelly area we notified Matt Williams and Andy Williams (CALM, WA), who have since observed or collected *T. atkinsi* near Sugarloaf Rock in the Leeuwin-Naturaliste National Park (A.A.E. Williams, pers. comm.).

Throughout the areas where we observed *T. atkinsi* its behaviour was similar. Males occupied small leks close to the ridge tops of dunes or along the cliff tops on limestone coasts. Active defence of these areas kept males on the wing briefly and frequently but in between sorties they landed on the sand, a stick, flower or rock. Flight was usually low, within a few centimetres of the ground, and very rapid making adults difficult to observe. Females were more likely to be seen in the lee of the dune ridges or the limestone cliffs. In periods when the wind had an easterly component this meant that at Yallingup and Prevelly the females were often on the beach side of the cliffs. In dune systems females occurred in the swales where they fly around and between the clumps of larval food plant.

Common and Waterhouse (1981) refer to a specimen of *Trapezites sciron* Waterhouse & Lyell from Yallingup so we decided to locate this specimen. A search through the Australian Museum collection revealed two specimens collected at Yallingup on 14 November 1913, by R.E. Turner (voucher number KL10087). These specimens have identical morphology to those of *T. atkinsi* taken elsewhere and fit comfortably within the series of specimens now known from Yallingup to Windy Harbour. Of additional interest is a number of specimens in the Museum collected at Bunbury during October 1938, by F.L. Whitlock. These are also very close to *T. atkinsi* as we currently know it.

With a greater number of specimens available the variation within the species is now easier to review. We have found that individuals at all sites vary considerably in the extent of maculation and the distinctiveness of the underside spots (Figs 1-6). In general the species is closest to *T. sciron* and, given the variation already noted in that species (Mayo and Atkins 1992), the full detail of this relationship remains unclear. The prospect of sympatric distribution with *T. argenteoornatus* (now < 10 km apart) also deserves closer attention.

Conclusion

As New and Sands (2002) point out, butterflies exhibiting narrow-range endemicity (in which they include *T. atkinsi*) have frequently been presumed of conservation concern even when no threatening process has been identified. Following the discovery of several new locations for *T. atkinsi* and extensive areas of the larval food plant within the new range, the conservation status of this species may now be judged much more secure. Many of the sites of adults and food plant are within a series of National Parks between Cape Naturaliste and Cape Leeuwin (Fig. 7) and this gives greater prospect for its survival. However, some of the sites (notably in the Prevelly area) are already subject to coastal development pressures and local and state governments will need to factor the habitat needs of this species into development planning processes. It would be valuable for a conservation management agreement to be established with the Shire of Augusta-Margaret River to ensure habitat areas under their control were adequately protected.

Acknowledgements

We thank Matt Williams and Andy Williams of CALM (Conservation and Land Management, WA Government) for assisting our field studies in Western Australia and for permission to include reference to their subsequent location of *T. atkinsi* at Sugarloaf Rock. Rory O'Brien of Augusta-Margaret River Shire provided advice about reserves vested with the Shire and Ian Bell of the Department of Land Administration provided maps of reserves. We also thank staff at the Australian Museum for access to material in their care, especially Max Moulds and David McAlpine.

References

BRABY, M.F. 2000. *Butterflies of Australia: their identification, biology and distribution.* CSIRO, Collingwood; xx + 976 pp.

COMMON, I.F.B. and WATERHOUSE, D.F. 1981. *Butterflies of Australia.* Angus and Robertson, Sydney; xiv + 682 pp.

MAYO, R. and ATKINS, A. 1992. *Anisyntoides* Waterhouse (Lepidoptera: Hesperiidae): a synonym of *Trapezites* Hübner, with a description of a new species from Western Australia. *Australian Entomological Magazine* **19**(3): 81-88.

NEW, T.R. and SANDS, D.P.A. 2002. Narrow-range endemicity and conservation status: interpretations for Australian butterflies. *Invertebrate Systematics* **16**: 665-670.

VALENTINE, P.S. and ENRIGHT, N.J. 1975. The Cape Naturaliste area, WA: an environmental resource evaluation. *GEOWEST* No. 6, University of WA; 102 pp.

WILLIAMS, A.A.E., WILLIAMS, M. and HAY, R.W. 1998. A new species of *Trapezites* Hübner (Lepidoptera: Hesperiidae) from Western Australia. *Australian Entomologist* **25**(1): 7-12.